THE VETERINARY RECORD

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Rabies.

Somewhere about 5,000 dogs have entered the Home for Lost Dogs in London since the Muzzling Order was enforced. These animals are described as nearly all belonging to the class of "homeless and wandering dogs." Not a single case of rabies has been discovered amongst them. This piece of evidence ought to be sufficient to explode the very widely held fallacy that the ownerless and homeless dog is the chief agent in disseminating rabies. When rabies was prevalent in London some years ago veterinary practitioners saw scores of cases in well-cared-for dogs, but the authorities at the Dogs' Home saw very few. Even if there be such a class as "the ownerless cur," which we do not believe, it is remarkably free from rabies. That dogs captured by the police may, in one sense, be called "ownerless" is true. They have been lost or turned out of doors. They are temporarily without an owner, and when of little value, or when the tax has not been paid, they are not claimed. That there are in London a number of dogs which are for any length of time without owners and which obtain a precarious living in the streets, so as to deserve to be classed as ownerless, is a statement without support from any good evidence.

Rabies comes to us by means of infected dogs which were bitten abroad or in Ireland. In Europe and in Ireland rabies always exists, and no regulations are adopted to protect our home-dogs from the dangers of the constant and very large importation. Of course when once introduced it may and does spread, but the ownerless cur is not the animal to blame.

Another fallacy widely prevalent is that a rabid dog is a wild and violent animal. The consequence of this is that every wretched animal that suffers from epilepsy or convulsions is incontinently knocked on the head. A still more dangerous consequence is that the majority of cases of rabies are not immediately recognised. The symptoms of the disease enumerated by the London County Council on placards circulated all over the Metropolis help to spread this fallacy, and thus to cause unnecessary alarm, when they do not mislead by suggesting a misplaced security. Quite one-half of the cases are what are called "dumb" rabies, and the prominent symptom in these is a paralysed lower jaw. This condition is not even mentioned, although it is probably more often in existence than any symptom published by the authorities.

Swine-Fever.

From the last published returns of swine-fever in *The London Gazette*, we gather that the disease is still progressing. The number of outbreaks for the week ending Feb. 22nd was 153. For the corresponding week of last year it was 96. During the eight weeks of 1896 there were 989 outbreaks, against 711 for the corresponding period of 1895. At the present time 46 counties are infected, but the authorities are content to have only nine swine-fever infected areas in which provisions for regulating movement are operative. And this is called attempting to stamp out disease! It is nothing more than an organised farce.

Retiring Councilmen.

The fourteen members who had to ballot for their retirement have submitted to the ordeal, with the result that the following retire:—

Elphick,	Shave,	Thompson,
Hunter,	Lawson,	Peele.

The number is completed by the names of

J. McCall and J. Simpson,

who retire by rotation. All are eligible for re-election.

NOTES ON RULES FOR THE INDIAN CIVIL VETERINARY DEPARTMENT.

In our issue of January 11th we published the rules for the Indian Civil Veterinary Department. The following notes on them have been sent to us from India.

Rule 12. This rule leaves it practically optional to the Government, not only to pass over officers of the Civil Department, for promotion to the post of Inspector General, but gives them the option of appointing a layman, civilian or combatant officer.

Rule 16. Under the leave rules laid down by the Civil Service Regulations, military officers in civil employ shall draw if on leave in England, not more than £250 a quarter and not less than £125 per quarter.

Clause (*a*) of this rule excepts veterinary officers who will draw only half military pay, plus half civil allowance, when on ordinary furlough. This at one shilling and twopence per rupee would come to, for—

A veterinary-lieutenant under five years service, £48 2s. 6d. per quarter.

A veterinary-lieutenant over five years' service, £56 17s. 6d. per quarter.

A veterinary-Captain under five years' service in the rank £78 15s. per quarter.

A veterinary-captain of over five years' service in the rank, £87 10s. per quarter.

A veterinary-major, £100 12s. 6d. per quarter.

It must be remembered that the rupee of late years has been oftener below 1s. 2d. than above.

According to the above rate of furlough pay a veterinary-major draws less when on leave in England by nearly £100 per annum than an Indian Staff Corps Subaltern in civil employ. The lower grades of civil veterinary officers being of course still worse off. The furlough pay of all ranks is less than their English pay and allowances. One would like to inquire why a special clause should be inserted in the rules depriving veterinary officers in civil employ of the emoluments enjoyed by all others.

Rule 18. "Double first-class fare allowed by rail." This sounds liberal, but practically does not cover expenses. Railway fares in India are very low; except for long journeys, which are the exception not the rule, the amount claimable is small. It is not uncommon at certain times of the year for superintendents to travel short distances by rail almost daily for weeks at a time. The outlay on these occasions is much as follows:—First-class fare for himself, 3rd-class for a servant, carriage hire to and from railway stations, luggage freight, payment of coolies (porters), and the numberless little odds and ends incidental to travelling. All these have to be defrayed from the double first-class. Add that Indian railway refreshment room charges are simply extortionate. As many months are passed annually in camp, marching in the districts, a full staff of servants has to be employed. All these men with the exception of one personal attendant, are idle at headquarters while the railway travelling is going on, but have to be paid all the same. At least two ponies have to be kept, these too, are of course idle. This is if the officer be a bachelor. If a married man, unless his wife be prepared to spend five to six months in each year in camp, marching daily, two establishments are necessary, one for camp, the other for the house.

"Eight annas a mile for journeys by road." This mileage is only allowed when more than 20 miles a day is covered. If under that distance five rupees a day. Except when travelling by dak, *i.e.* by carriage with relays of horses, the mileage can seldom be claimed.

Rule 20.—The prohibition of private practice without the sanction of the Local Government. This rule is superfluous. A civil officer has a great deal too much to do to engage in private practice.

Supplementary rules in regard to examinations in vernacular. These are extremely arbitrary. Hindustani is the language of India, and there are few districts from the Himalayas to Cape Comorin where it is not understood. An officer might be transferred every two or three years, from one province to another and asked to learn a fresh language in each.

"GRUNTING."

By R. H. Clarke, Westwood, Thanet.

I regret that the discussion invited by Captain Hayes and others has not proved more productive, as I hoped that it would evoke a good deal of interest, and in the absence of any worthier contributions I venture to trouble you with a few remarks on the chance that you may consider them worth insertion.

Captain Hayes' question whether grunting is inspiratory or expiratory shows the importance in every discussion of starting with a perfectly clear conception of the point at issue, and a perfectly clear agreement as to the meaning of the terms employed. Personally, I have no conception of the sort of sound which would be described as an "inspiratory grunt," unless it be a hiccough, but it is obviously a totally different thing both in character and mode of production to that expiratory effort which is usually, I think, indicated by the word "grunt." Professor Humphry, of Cambridge, was fond of reminding his pupils that they could learn a great deal of anatomy on their own bodies in bed—and he might have added physiology also, and there are few better ways of studying respiratory and laryngeal sounds than by investigating them upon the *corpus vile* which, like the poor, is always with us, and I think that if any of your readers will devote a few moments to the production of expiratory and inspiratory "grunts" they will not remain in doubt whether the "grunt" which a threatened horse gives is expiratory, and they will come to the conclusion that there is no great mystery about the mode of its production, especially if they will similarly produce and analyse various other familiar respiratory sounds (I need not commend the advantage of reasonable privacy for this exercise). I think then that a "grunt" will be found to take its place as an expiratory sound somewhere between a cough and a groan.

In a cough we have a firmly closed glottis burst violently open by a convulsive expiration, and after yielding, quickly recovering a varying degree of tension, on which depends the tone and quality of the cough, deep, sepulchral, barking, high-pitched, wheezing, etc.

A groan is a prolonged expiration, more or less voluntary, through a glottis only sufficiently closed to maintain a deep chest note.

A "grunt" is the momentary and involuntary yielding of an imperfectly closed glottis to a sudden but not necessarily violent expiratory effort. The imperfect closure here is not incomplete closure, but imperfect contraction of adductor muscles.

As regards the glottis therefore, in a cough, it is firmly closed, in a grunt it is closed but not held firmly, and in a groan it is not closed at all. As regards the expiration effort in a cough, it is a violent convulsion, in a grunt a sudden convulsion, but not necessarily violent effort, whilst in a groan it is not convulsive, nor violent, but prolonged.

In all sudden efforts of the abdominal muscles the glottis is closed to fix the diaphragm; this is noticeable in the various expulsive acts, parturition, defœcation, etc. If the effort is unusually strong, or the glottis or adductor muscles weak, it will yield and air will escape giving rise to a grunt. It is evident that a larynx with atrophied muscles on one side will yield to a slighter pressure than one which is normal—other things being equal, but evidently also, the force of contraction of the abdominal muscles under various conditions, the pressure of air brought to bear on the glottis, and the resistance presented by openings of varying size supported by muscles of varying vigour, comprise so many elements of un-

certainty that we ought to anticipate discrepancies in results, and it is not surprising that opinions differ regarding the value of grunting as a diagnostic sign. Yet while it happens that a roarer may not grunt on being threatened and a sound horse will grunt on certain occasions, for instance, when he drops his hind legs in a ditch when he is blown, it is still true that in the vast majority of cases a horse with a paralysed adductor is more liable to grunt than a sound horse, and threatening is a rough-and-ready way of illustrating the distinction.

I think the "grunt" of pain Captain Hayes' refers to runs very close to a groan and is not so significant of an unduly yielding glottis as the wholly involuntary and sudden grunt produced by momentary contraction of the abdominal muscles. As regards Captain Hayes' last question, surely no one is better qualified to answer it than himself, as few men have had so much experience of Eastern horses. One can only say if grunting is common amongst them, "it didn't ought to be."

I will not trespass so far as to discuss Mr. Dowell's views at any length. I rather differ from him and from many in thinking that it should be no disparagement to any view to describe it as theoretical. What can be more theoretical than the law of gravity? It is a theory yet what fact is better established? But what we call theories are too often guesses. What we want are accurate observations, sound inductions will follow. I would point out (1) whilst we may assume that any fright or shock does momentarily raise the blood pressure there is no

1. Heart.
2. Left Lung.
3. Trachœa.
4. Posterior Aorta.
5. Anterior Aorta.
6. Common Aorta.
7. Pulmonary Artery.
8. Remains of Ductus Arteriosus.
9. Left Vagus.
10. Left Recurrent Laryngeal Nerve.

evidence that such momentary pressure produces paralysis of any nerve, and if it did it ought to act in the case of a nervous sound horse more than in a phlegmatic roarer. (2). There is no evidence of pressure on the left recurrent nerve by bronchial glands. The uniformity of the symptoms of roaring and the unilateral character of the lesion must point to a uniform cause. If therefore such pressure could be demonstrated in one roarer in ten (which it cannot, nor in one in 100 either) it could not be accepted as a cause.

Finally it is demonstrable that paralysis of the laryngeal muscles is always associated with peripheral neuritis of the left recurrent nerve. If Mr. Dowell will make the dissection—of which I enclose a photograph—he will see that the left recurrent nerve is liable to pressure between the posterior aorta and pulmonary artery where they are held in apposition by the remains of the ductus arteriosus, and he can demonstrate that pressure in a roarer as I have done by a simple experiment: A fine tube scarcely bigger than the recurrent nerve, made of rubber tissue is

passed between the aorta and pulmonary artery in the situation of the nerve. One end of the tube is connected with a canula and tube leading to a manometer and pressure bottle filled with water; the other end of the tube is open and water trickles from it freely with the slightest pressure. The aorta and pulmonary artery are now injected with water at a pressure of 150 or 200 millimeters of mercury. The flow of water in the rubber tube is immediately arrested with a resistance which it requires the pressure of a good many millimeters of mercury to overcome.

ACUTE INTESTINAL OBSTRUCTION; LIMITED ENTERITIS; DEATH.

By E. Wallis Hoare, F.R.C.V.S., Cork.

Subject.—An agricultural stallion six years old.

Previous History.—Had been employed for general farm work, and during the season had served an unlimited number of mares. Was always a ravenous feeder and inclined to put on high condition. About a year previous to present illness he suffered from an ordinary attack of colic. Had been doing little or no work for three weeks previous to present attack, and was fed almost entirely on hay.

Oct. 5th.—At 5 a.m. he left his owner's stables with a load of oats for the market, a journey of about six miles, and received no food before starting. He remained in the open market till 8 a.m. and was observed by the attendant to appear dull and heavy, and to paw in a listless manner with alternate fore feet.

Clinical History.—When brought for treatment at 11 a.m. the following symptoms were presented. Persistent pawing in a listless manner with alternate fore feet, the head turned occasionally towards the right flank, abdomen hard and tense to the touch, but no evidence of tympanites. Temperature 101 deg., pulse quick and rather hard in character, respirations accelerated, no injection of visible mucous membranes. The skin showed evidences of recent sweating. Bladder was distended, and on the catheter being passed a large amount of urine of normal character was drawn off. Rectal examination revealed on the right side as far as the hand could reach a hard mass in the colon, very tender on pressure; the rectum was empty, and examination was resented by patient. Examination of the usual seats of herniae gave negative results. The right testicle was retracted to a marked degree. The following draught was given:

℞ Chlorodyne, ʒij.
Spts. Aeth. Nit., ʒij.
Ol. lini., Ojss.
Ft. Haust.

The patient was placed in a large box stall, and an enema administered which was not retained. The pawing was continuous, and the hind quarters were frequently forced against the sides of the stall. At intervals the animal would lie down in a careful manner, and groan, then roll on his back and rise, appearing a little relieved. The head was frequently turned towards the right flank, and pressure on this region caused pain.

After an interval of half-an-hour no relief was apparent, so the following was administered:

℞ Ext. Cannabis. Ind., ʒss.
Ft. bol., j.

1 p.m.—No improvement, pain seems more urgent, the animal still forces the hind-quarters against the sides of the stall. Gave Ext. Cannabis. Ind., ʒss. in bolus, also 4 pints of warm water as a draught. Enemas were administered by means of the long rectum tube, but were not retained, and enemas of ol. lini. met a similar fate.

2.30 p.m.—Pain has become more acute, and continuous. Gave Chlorodyne, ʒj., and a hypodermic injection of morphia, gr. iv. Repeated this in 2 hours as no relief.

6 p.m.—Animal walks round the stall in "circus" mode of progression, paws vigorously at intervals, and occasionally rolls on back. Abdomen slightly tympanitic. Gave

℞ Fl. Ext. Cannabis. Ind., ʒiv.
Chloral Hydras., ʒj.
Ol. lini., Oij.
Ft. Haust.

8 p.m.—No improvement, still walks round the stall, pain urgent at times, no action of bowels. Gave

℞ Ext. Cannabis. Ind., ʒj.
Chloral Hydras., ʒj.
Sig. Give in 2 boluses.

11 p.m.—Still in pain, walks round the stall, lies down and groans deeply. On being allowed into a large shed he walked continuously up and down in a persistent manner, lay down for a few minutes and struggled. Determined, if possible, to produce an hypnotic action, I administered,

℞ Chloral Hydras., ʒij.
Ol. lini., Oj.

This was repeated in two hours and produced a quietening effect. Left 2 doses of chlorodyne to be given if pain became severe, and at 3 a.m. and 5 a.m. these were given by the attendant as pain returned.

Oct. 6th, 9 a.m.—Patient much quieter, but walks around the stall at intervals. No action of the bowels, abdomen slightly tympanitic. Visible mucous membranes were not injeeted, the pulse was quick and weak. Rectal examination did not reveal anything further than that of the previous day. Suggested to the owner that the only chance for the patient was to perform an exploratory laparotomy, but he would not consent.

The careful administration of enemas was of no avail, so I determined to try the effect of Physostigmine, very injudiciously as the result proved, and 1 gr. of physostigmine and 2 grains of Pilocarpine Nitrate were injected subcutaneously. In 30 minutes the animal strained violently, passed a small amount of flatus, and a few small pellets of faecal matter hard as flint, with sharp projections, and covered with mucus.

Large flakes of mucus were passed at intervals. There was profuse sweating and salivation, the sweat literally pouring off the abdominal region. The violent straining continued, but there was no action of the bowels. The animal gradually became quieter, and died after a few strnggles at 1 p.m.

Autopsy, Oct. 7, 9a.m.—Abdomen enormously distended, and a large amount of subcutaneous infiltration in regions of flanks and inguinal regions. Stomach contained a small quantity of semi-fluid ingesta. Small intestines empty, and about the middle of the Ileum three feet of the intestine was acutely inflamed, and contained a moderate amount of very fœtid blood-stained fluid. The cæcum was distended with fluid composed largely of raw linseed oil. The double colon was impacted with hard, dry ingesta, firmly adherent to the intestinal walls. At the termination of the 4th division of the colon, a large hard faecal mass was found, completely blocking the passage, and as hard as flint. The intestine around this was inflamed.

Remarks.—Whether the limited enteritis described was the result of the action of the Physostigmine or otherwise, I shall leave to others to decide. At any rate the drug was contra-indicated, but as we learn as much from the teachings of failures as from those of successes, I give the clinical record of this case in full. Assuming that this Enteritis was not present at first, the case would have been a suitable one for abdominal section, if only for experimental purposes. It is clear that, unless a perfectly correct diagnosis can be made of impaction depending on intestinal paralysis, physistigmine should not be employed. The difficulty of arriving at this is only too well known to those who compare clinical histories with the evidence afforded by autopsies.

Veterinary literature is still very deficient on the subject of abdominal diseases. On referring to that *magnum opus*, "Friedberger and Fröhner's Pathology and Therapeutics of the Domestic Animals," translated by Zuill, we gain little or no information on this important subject, although we read in the translator's preface, that until the appearance of this work there was "absolutely no satisfactory text-book on the practice of Veterinary Medicine for English-speaking students and practitioners." We need only refer to the section on the diagnosis of Volvulus, to ascertain how little information of any practical value is given in this respect, *i.e.* "Failure of the remedies used and especially of injections of Physostigmine help to clear up the diagnosis." And with regard to treatment—"Some success has been obtained by placing the animal in different positions more or less unusual, also by rolling, or making them ascend or descend a steep hill, etc." "Laparatomy and reduction of the accident constitute a *dernier ressort*, in cases in which the diagnosis is established with enough certainty."

We practitioners anxiously enquire, when is this possible? Our current text-books are honest enough to admit that, in our present state of knowledge, diagnosis in abdominal affections, is a subject upon which there is yet much to be learned. Clinical experience amply justifies the veracity of this statement, and the only chance we have of improving our knowledge in this respect is by taking careful clinical records of each case, and of holding an autopsy whenever this is possible. By this means we shall be enabled to ascribe each symptom to its correct cause, and to give each symptom its proper diagnostic vaiue, and thus help to place clinical medicine on a scientific basis.

SEPTICÆMIA AFTER CASTRATION IN A CAT.

By W. R. Clarke, M.R.C.V.S.

On the 5th of this month, a young Persian cat, about eight months' old, was castrated by an amateur.

On the 15th the animal was brought to us for treatment. He was very weak, and vomiting persistently, and I ascertained that this vomiting had been going on for about twenty-four hours.

On examining the inguinal region, it was found that the long hairs round the scrotum (which the the operator had made no attempt to clip away) had become firmly glued together by the discharge from the scrotal wounds, and now formed a solid obstacle to all further drainage.

When the part was washed, and the matted hair removed, the underlying skin was found to be gangrenous for an area round the scrotum about the size of a penny piece. Between this skin and the abdominal muscles was a not very abundant collection of fœtid puriform matter. The tissues of the abdominal wall, especially that immediately around the right and left inguinal rings, was granulating freely.

The wound was cleansed and disinfected in the usual fashion, and the vomiting subdued by subnitrate of bismuth, but the cat never regained its strength, and was found dead on the morning of the 17th.

At the post-mortem the only lesions observed were two patches of intense gastritis, the rest of the mucous membrane of the stomach appearing normal. The stomach and intestines contained no alimentary matter. No peritonitis was discovered.

Persistent emesis, due, no doubt, to the action on the nervous system of the toxin, which has been absorbed into the circulation, is, I believe, a common effect of septicæmia in the dog and cat.

I thought this case worth recording, not on account of any special rarity or interest, but simply because it illustrates the necessity, in long-haired animals such as Persian cats, for observing the precaution which I have often seen neglected.

The Veterinary Inspectorship of Mohill Union.—A fortnight since the guardians of this union elected Mr. Reynolds, Esker South, Dromod, to the position of Veterinary Inspector of the union at a salary of £30 a year, subject to the condition that he would reside in the union. At their meeting yesterday a communication was received from the Veterinary Department informing them that as Mr. Reynolds had no professional qualifications, being only the local cow-doctor, he could not be elected and had no right whatever to the title of Veterinary Inspector. The guardians agreed to order a new election, and as some considered the salary too small, it was decided to fix it on that day fortnight and to strike out the words "to reside in the union" from the advertisement.

THE COUNCIL AND THE EDUCATIONAL EXAMINATION.

I trust Mr. Barrett will excuse my tardy acknowledgment of his parental admonitions, which might have carried more weight had they taken cognisance of the refined controversial tone adopted by his political leader. I have perhaps given scant attention to this subject, and can certainly lay no claim to the extensive legal knowledge possessed by Mr. Barrett, but it has usually commended itself to me as a practical rule of life to make myself passingly acquainted with a subject before venturing to lecture my fellows thereon, and it was therefore with considerable astonishment, not unmingled with mirth, that I perused Mr. Barretts's explanation of "why the Council has fallen into such confusion over the education question."

Mr. Barrett is pursuing a chimera from the outset. He says:—

"The resolutions are divided into two parts which I shall denominate A and B.

"Regulations A provide for the registration of students who possess approved certificates.

"Regulations B enable a student to be registered who has passed what is termed the preliminary examination in general education, and hence it will be observed that the two modes of registration are entirely distinct."

In point of fact there are no two such modes of registration, there is no preliminary examination in general education, such as Mr. Barrett suggests, and the *sole* method of registration is that by the production of approved certificates. Hence the very premises of Mr. Barrett's argument are erroneous, and his ingenious, if somewhat tortured, conclusions absolutely without foundation. I need not follow him through the mazes of special pleading in which he indulges, but will accept the summary he gives (this, although included within quotation marks, is in no sense official, but only represents Mr. Barrett's views) as setting forth his case:

"Students who possess any certificates in Divisions I., II. and III, (excepting University of Wales) are entitled to registration without enquiry; those possessing any certificate in Division IV. must show that they passed all the subjects at the same time; and, lastly, a student who possesses none of these certificates must pass the preliminary examination at one and the same time."

These distinctions have emanated solely from Mr. Barrett's brain. The Registrar of the General Medical Council knows nothing of them, and assures me they are non-existent. To prevent any misunderstanding, I submitted to that gentleman the following questions in writing which, together with his answers, I give below.

Question—Does the General Medical Council itself hold any matriculation examination whatever?

Answer—No.

Ques.—Does the note on p. 7 of the Regulations, "The Council will not, in future, accept any certificate of pass in Preliminary Examination in General Education, unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of Medicine have been passed at the same time" apply to the examinations of all the 87 examining bodies enumerated in the four "divisions" of the Resolutions?

Ans.—Yes, with the single exception of the Cambridge Previous Examination.

Ques.— Do not the subjects on p. 7 of the Resolutions enumerated under the heading "Regulations of the General Medical Council in regard to Preliminary Examination in General Education required to be passed previous to the commencement of Medical Study" in fact define the irreducible minimum below which the certificates tendered may not fall?

Ans.—Yes.

These three questions and their answers completely refute Mr. Barrett's contentions. They show (1) That there is no special examination of the (General Medical) Council" but that what he so regards is a list of subjects for the guidance of examining bodies. (2) That with one exception all the 87 kinds of certificates accepted must have been obtained at one time, and (3) That Professor McFadyean's motion merely places us where even Mr. Barrett says we should stand; on the same level as the medical profession.

It seems incredible that so obvious a course as applying to the Medical Registrar should not have occurred to Mr. Barrett, or that anyone who has undergone a legal training should so erroneously have interpreted perfectly clear directions. If I may without presumption venture to return Mr. Barrett's advice I should suggest to him the desirability of a preceptor knowing something of what he talks about, at the same time informing him that the address of the Medical Registrar is 299 Oxford Street, W.

As this subject is of importance I hope you will afford to this letter an equal prominence to that which called it forth.

JNO. A. W. DOLLAR, M.R.C.V.S.

VETERINARY SOCIETIES.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

An ordinary general meeting was held at the Royal College of Veterinary Surgeons on Thursday evening, the 6th February, Professor Penberthy, the president, occupying the chair. The other Fellows present were:—Messrs. Nicholson Almond, A. L. Butters, W. F. Barrett, Veterinary-Captain E. R. Butler, A.V.D., Vet.-Capt. L. Blenkinsop, A.V.D., Joshua K. Bruce, Hugh A. MacCormack, A. H. Clapp, Matthew Clark, F. W. Dowell, T. C. Garry, Henry Gray, J. Sutcliffe Hurndall, W. Hunting, F. G. Mahon, Hon. Sec., Vet.-Colonel B. Kettle, A.V.D., Professor, Macqueen, Professor McFadyean, Professor F. Hobday, R. Porch, J. Rowe, Hon. Treas., Chas. J. Reakes, F. W. Ridler, H. G. Rogers, W. Robertson, C. J. Reekie, Hugh Singleton, F. Samson, Vet.Capt. F. Smith, A.V.D., W. E. Taylor, J. E. Tooth, P. Vincent, F. Orford L. Walpole, W. H. Williamson, F. W. Willett, W. Willis; and as visitors: Dr. Dudley Buxton,

of Mortimer Street, Cavendish Square, W.; and Messrs. J. Holmes, H. Barnard, D. P. Jackson, Herbert King, Morgan Evans, T. E. W. Lewis, A.V.D., F. Bagshawe, W. R. Clarke, and J. B. Gilruth.

On the motion of Mr. W. F. Barrett, seconded by Prof. Macqueen, the minutes of the preceding meeting were taken as read and were confirmed.

The Hon. Sec. (Mr. F. C. Mahon) intimated that he had received communications expressing regret at their inability to attend from Veterinary-Major Glover, A.V.D., Southsea; Mr. Prudames, Berkhampstead: Mr. A. Wheatley, Reading; and Mr. J. Roalfe-Cox, of Kensington.

Proposed Professional Union.

The Secretary read the circular letter received from Prof. Macqueen suggesting the need of a representative union of members of the veterinary profession.

Professor Almond said it appeared to him that the proposals of Professor Macqueen were eminently worthy of favourable consideration. On repeated occasions the position of the profession had been undermined by those in authority, and the necessity for a strong protective union had long been obvious. It was a trite but true saying that union was strength, and he thought that the union suggested by Professor Macqueen would be based on right lines. He moved that a small committee be formed to consider and report upon the professor's communication.

Mr. Taylor seconded the motion, which was agreed to.

The following gentlemen were then constituted the committee: Professor J. Penberthy, Vet.-Capt. F. Smith, Professor Macqueen, Mr. Barrett, Mr. Singleton, and Mr. Ridler.

Mallein Treatment and the London County Council.

The Secretary read a letter from Mr. T. C. Garry saying he was desirious of bringing before the meeting a matter of interest to the veterinary profession with reference to the present regulations relating to glanders.

Mr. Garry said he claimed their indulgence for a few minutes while he detailed a case which he thought was of interest to practitioners, and perhaps of still greater interest to horseowners, whose support veterinary surgeons required for their livelihood. A horseowner bought a bankrupt stock amongst which were 31 horses. He instructed him (Mr. Garry) to apply the mallein test to these horses knowing that glanders had existed in the stable on and off for some years. The result of the application of the test was that ten horses reacted, some slightly others definitely. There were no external symptoms of glanders in any of the horses—no enlargement under the jaw and no discharge from the nostrils. The horses were all in good condition, and there was nothing to lead one to suspect anyone of ill-health. A London County Council Inspector, however, walked into the stable and labelled the lot as suspected of glanders, although there was no symptom of this other than that the horses had reacted to mallein. The horses labelled by the inspector were detained in the stable a month and nothing further was done in the matter. The action of this inspector, if valid, must serve as a warning to veterinary surgeons, who could not advise horseowners to submit their horses to the mallein test if by doing so they were liable to have their whole stock labelled as suspected of glanders. He thought that the action of the authorities was high handed, and rather prejudicial to the interests of the veterinary profession. Hence he asked for an expression of that Society's opinion on the subject. The horseowner to whom he referred was willing, for his own benefit and that of his neighbours (although his horses had apparently years of work in them) to have them slaughtered conditionally that the London Council Council paid one-fourth the value of the animals that, on post-mortem examination, were proved to be glandered, and the full value of the horses shown to be free from that disease. Up to the present there had been no action on the part of the County Council or the Board of Agriculture, and the matter stood simply where the inspector left it. Mr. Garry believed that in a recent paper read by Professor McFadyean before that Society on the subject of glanders the Professor stated that they could with safety apply the mallein test, and there was no law or reason against working horses which had reacted, so long as they were kept isolated and under strict supervision. The present instance, however, showed that when horses reacted to mallein they were liable to be stopped from working and to be labelled as suspected of glanders. It seemed as though the Council were bent upon exterminating glanders with a maximum amount of loss and inconvenience to horseowners.

Mr. Butters: Since these horses were labelled suspected have they been retested with mallein?

Mr. Garry: They have been twice tested, once since they were labelled.

Mr. Butters: And did they react?

Mr. Garry: They reacted—some slightly.

Mr. Butters: They were tested and then labelled, and then they were tested again?

Mr. Garry: Yes.

Prof. Almond: And reacted a second time.

Mr. Garry: Yes. He added that it was not the action of mallein which had to be considered but that of the rules of the County Council presumably framed after deliberate consideration. Were the Council to debar horseowners from working their horses simply because they reacted to mallein? There were hundreds of horseowners who were using the mallein test as a means of weeding animals out gradually. If veterinary surgeons advised the application of the mallein test and their advice was taken and the Council's veterinary inspector walked in and labelled the stock that reacted, then they would be doing a thing which their clients would not like.

Prof. McFadyean: By what means did the inspector acquire his information as to whether any of these horses had or had not reacted? Secondly I would ask: Has the Board of Agriculture been appealed to.

Mr. Garry: I cannot say how the inspector got his information, except that he knew the previous owner of these horses had had glanders in his stables and had absconded. It was a notorious fact in the district that he had absconded, and that these horses were bought from the official receiver by another person.

Professor McFadyean: I am afraid I have hardly explained myself. How did the Inspector know, on entering the stable, which horses had reacted? I am not surprised so much that he got information regarding the application of the test, but how did he know which of the horses had reacted.

Mr. Garry: He saw that ten horses were isolated, and learnt somehow that they had been tested with mallein and he looked at the local swelling. The Board of Agriculture is, I believe, to be appealed to.

Professor McFadyean: That is the right thing to do.

Mr. Barrett: Is there any objection to revealing the name of the Council's inspector who thus acted?

Mr. Hunting: Yes. I should say yes.

Mr. Barrett: I have no wish to be inquisitive. The inspector may be my friend, Mr. Hunting. (Laughter.)

Professor McFadyean: Is the question asked with a view to have the inspector labelled? (Laughter.)

The Chairman pointed out that Mr. Garry wished not for the expression of a legal opinion, but an expression of the opinion of that Society as to the action of the County Council through their inspector. He (the

Chairman) thought they should as far as possible avoid personalities, though it rested with Mr. Garry as to whether he introduced the name of the inspector or not.

Mr. BARRETT said that the inspector in question had adopted a course of procedure which was not generally followed by the veterinary inspectors of the County Council. After the remarks of Mr. Hunting it was clear that he was not the inspector who acted in the way described. His experience of the inspectors under the London County Council was not that of Mr. Garry. In the course of his practice he had had to deal with several serious outbreaks of glanders, and he found in every district that the inspectors were only too anxious to meet him in a fair and reasonable manner. With regard to the County Council his belief was that they in all probability got blamed for acts they had not committed. His experience of the County Council was this, that Mr. Spencer, the chief of the Public Control Department or his deputy, were gentlemen of considerable commercial knowledge, gentlemen who understood somewhat the subject of glanders, and that it was not Mr. Spencer's wish that proceedings of this kind should be carried on by the veterinary inspectors. The difficulty the Department was in was this: an inspector having acted and given a definite opinion they could not well over-rule that opinion. They could do so legally but they hesitated, and rightly hesitated to interfere with the action of their inspectors when once taken. If the Board of Agriculture were appealed to they might say they saw nothing to justify the further stopping from work of these ten horses. The course pursued in the case mentioned by Mr. Garry was manifestly unjust to owners who were generous enough to have their horses treated with mallein. With regard to the legal aspect of the question he (Mr. Barrett) thought that any inspector of the Council might certify that he had seen sufficient to warrant his regarding a horse as suspicious. He might do this without any external manifestations of glanders. The gland might be perfectly clear, there might be no nasal discharge, and no farcy buds about the body and yet an inspector could certify a horse as suspicious. If Mr. Garry would move a resolution he (Mr. Barrett) should be pleased to second it. He thought a meeting of that kind attended so largely by representative men of the profession should express in a clear and emphatic manner their condemnation of the manner in which Mr. Garry's client had been treated.

Professor MACQUEEN: I take rather a different view from some speakers, and I certainly shall not commit myself to any resolution condemning the action of the County Council inspector. It may be that the inspector is wrong, but I do not think that any meeting of this kind should commit itself in the way of condemnation when they have only heard one side of the story. At the same time I do not doubt the statements made by Mr. Garry, but we are not in possession of knowledge possessed by the inspector. We do not know what instructions the inspector may have had, and I do not think in the face of the fact acknowledged by Mr. Garry that some of these horses were glandered, we should commit ourselves to a wholesale condemnation of the conduct of the inspector.

Mr. HUNTING: But nobody proposes to do so.

Mr. GARRY said his motive in bringing this matter before the Society was not to condemn the inspector but simply to show how, in the methods the County Council were adopting to exterminate glanders, they were causing a maximum of loss and inconvenience to horse-owners. What he desired to bring specially before the Society was that veterinary surgeons should be permitted to use mallein without the dread of an inspector suddenly appearing on the scene and labelling the horses suspicious. A year of two ago he tested with mallein a horse which had been condemned by the County Council inspector. The horse did not react. It was again tested with a like result. Nevertheless the label was not removed, and on an appeal to the County Council the responsibility was shifted to the inspector. The inspector shifted the responsibility to the Council and nothing was done. After the lapse of a considerable time the horse was allowed to be worked. It never died of glanders. In that case the Council would not recognise mallein. In the present case when the Public Control Department and its chief officers were appealed to, it was said that the horse reacted to mallein. Being reminded that previously they had regarded a horse which did not react to mallein as still suspicious, their reply was that the inspector had since been "converted." (Laughter.)

The CHAIRMAN: Before the motion is put, I should like to draw the attention of the meeting to the fact that the Board of Agriculture has been or is to be appealed to. [To Professor McFadyean: Have you any idea what they will say?]

Prof. MCFADYEAN: No.

Professor MACQUEEN: I move that further consideration of Mr. Garry's complaint be deferred to the next meeting.

Professor MCFADYEAN: I feel inclined to second that. I should not like, however, for anybody to infer from that that I do not sympathise with the difficulty in which this individual horseowner and his veterinary adviser have been placed. It raises matters of very considerable importance, and I do not in the least think this is a case for moving a vote of censure upon anybody. If anybody was to propose a resolution to the effect that a horse that has reacted to mallein should not be suspected of glanders and is not as certainly glandered as if you saw a nasal discharge of any particular quality in a horse which had not been tested, then I should not vote for it.

Mr. HUNTING: This is not altogether a question I think, as Professor McFadyean has put it, whether a horse is glandered or not—(Professor McFadyean: I did not say altogether that)—because the action of mallein is just as violent upon a horse that contains in his lungs two glandered nodules the size of half a pea (in which case the horse may probably work a year or two) as in the worst case of glandered lungs. Therefore the argument is in favour of not damaging a man's property because you see a glandered reaction. To kill a horse and give only £2 to its owner simply because it reacts to mallein is a gross injustice.

The CHAIRMAN: I am afraid further discussion on the question raised by Mr. Hunting would open up matters for discussion which we could not possibly get through to-night. I do not think that Professor McFadyean or Professor Macqueen have any desire to shelve the consideration of the case adduced by Mr. Garry because they propose that it be deferred. I believe that Mr. Garry is not the only gentleman who has been in this position, and I may say that the question has been discussed by the executive body of the profession, and that steps are being taken to settle the matter as regards the use of mallein in this way.

Professor MACQUEEN moved, and Professor McFadyean seconded, "That the further consideration of Mr. Garry's complaint be deferred to the next meeting."

Mr. GARRY moved as an amendment "That in the opinion of this meeting the act of labelling a horse merely because it reacts to mallein is, in the present state of knowledge, an unwise and arbitrary proceeding." He said he should like the meeting to vote for this resolution because he thought it would strengthen any appeal that might be made to the Board of Agriculture.

Mr. BARRETT seconded the motion.

Twelve voted for the amendment, which was declared to be lost.

Mr. HUNTING then proposed as an amendment:

"That this meeting considers the enforced isolation of horses showing no symptoms of glanders arbitrary and unfair."

Mr. REEKIE seconded the amendment.

Professor ALMOND: I should like to ask Mr. Hunting for an explanation of his amendment—whether he considers reaction to mallein no symptom of glanders?

Mr. HUNTING: Certainly not. In any legal sense of the term it is not.

Professor MCFADYEAN: I beg to dissent emphatically from that view.

The original motion of Professor Macqueen's was declared carried by the casting vote of the Chairman, the number voting for that and for the amendment of Mr. Hunting appearing to him to be equal.

Professor ALMOND: I would suggest that, if possible, the inspector be invited to attend our next meeting and give his version of the matter. I propose that he be invited to attend.

Mr. HURNDALL: I second the motion.

Professor ALMOND: What is his (the inspector's) name?

Mr. HURNDALL: That is what I want to know.

Professor ALMOND: Whoever he may be I presume he is not ashamed of his action if he be a veterinary surgeon.

The CHAIRMAN: Will you put your proposition in the form that Mr. Garry be asked to invite the gentleman to attend our next meeting.

Mr. HURNDALL: It seems to me impossible to arrive at any further conclusion in the matter unless we have some additional evidence brought before us. I certainly think if this gentleman has seen fit to take such decided action in the matter, even to giving offence to the owner of these horses and his veterinary adviser, he ought to be in a position to come forward and substantiate his reasons. If he is not prepared to do that we shall be able to draw our conclusion accordingly.

Mr. GARRY: One last word. I have endeavoured not to make this matter a personal matter at all. I did not bring it before this meeting as a grievance against any one inspector but simply because I wished to elicit an expression of opinion from this Society that the Council have—or should have—no right to stop horses from working simply because they react to mallein without any other symptoms whatever. I think if we ask the inspector to attend and give his evidence about this matter we shall make the question a personal one—a thing I desire studiously to avoid. I decline to make the subject a personal one. I simply brought the matter under your notice because I hoped that you would see your way clear to say that the County Council had acted in a high-handed manner in not allowing these horses to be worked while isolated.

Professor MCFADYEAN: It appears to me what Mr. Garry wishes us to discuss is not an individual case but general policy.

The CHAIRMAN: Most decidedly. I understand that.

Mr. GARRY: That was my wish.

Professor ALMOND, with the consent of his seconder, then withdrew his motion.

NOMINATIONS.

Messrs. S. F. Hammond-Thorn and A. Hawes, members of the Royal College of Veterinary Surgeons, of 127, High Road, Kilburn, were nominated for election as Fellows of the Society by the President, and by Mr. F. C. Mahon and Mr. W. E. Taylor. Mr. T. E. W. Lewis, A.V.D., of The Camp, Woolwich, was similarly nominated by Vet.-Capt. F. Smith, Prof. Penberthy, and Mr. F. C. Mahon.

FIBROUS ANCHYLOSIS IN THE HORSE.—RESUMED DISCUSSION ON CAPTAIN BLENKINSOP'S PAPER.

Vet. Captain F. SMITH: Captain Blenkinsop has introduced to our notice the treatment of a disease known as fibrous anchylosis, and as I gather from the short discussion which followed the reading of his communication, that some of the speakers regarded the disease as probably more imaginary than real, I think it would be well in re-opening a consideration of this important paper to discuss the subject under two heads. Firstly, to enquire into the existence or otherwise of fibrous anchylosis, and secondly to attempt a criticism of the value of the treatment recommended.

Fibrous anchylosis is defined as impaired mobility of a joint, and speaking personally I think the term anchylosis employed to designate this condition is an unfortunate one. Rightly or wrongly one associates with the use of the word anchylosis partial or complete immobility of a joint due to bony union, and though I do not doubt for one moment the correctness of the term employed by Captain Blenkinsop, yet I think it unduly prejudices the first hearing of his case.

The causes of fibrous anchylosis given by the writer are as follows: synovitis, extravasation from sprains, any inflammation or injury causing exudation and rheumatism. On the question of sprains of joints I hold rather peculiar views. Though it is common to speak of sprains affecting certain joints of the limbs, yet I believe such accidents are really very rare, and though for the purpose of practice it is quite permissible to speak of sprains of joints, yet as a matter of fact they are the exception and not the rule. Please, however, do not misunderstand me, I recognise that sprains in the region of a joint, for instance the fetlock, are extremely common, but I hold that to have a sprain of the joint itself those tissues directly responsible for keeping the bones in apposition must be sprained, and such is not borne out by post-mortem experience. For instance it is not the lateral ligaments of the fetlock which suffer, but the flexor tendons, suspensory and annular ligaments, and though it is true that occasionally inflammation may extend from these to the joint proper, such extension does not constitute a sprain.

Again, if sprained fetlock joints were common, the lesions should be met with on the anterior face of the joint, and not as we know it to be on the posterior aspect.

The distinction is not mere hair splitting, but an attempt at exactitude; it is quite permissible in practice to shield ourselves behind a sprained joint to disguise our ignorance of the seat of lameness in an obscure case, but amongst ourselves there is no necessity for thus employing the tact of practice. With the exception of one joint, to which I will presently allude, I cannot charge my memory with any other liable to suffer from a sprain, a diseased condition of the ligaments or other structure responsible for keeping the bones in apposition.

Again, what inflammation or injury in the region of a joint is liable to be followed by fibrous anchylosis? We all know how commonly joints are bruised, and further that from such injuries true bony anchylosis may occur, but I have yet to recognise the class of case where fibrous anchylosis follows a blow in the neighbourhood of a joint.

Rheumatism as a cause of fibrous anchylosis is well-known in man, but is rheumatism sufficiently common in the horse to be an important factor in the matter? Like sprains of joints I hold peculiar views on rheumatism, at one time I denied its existence in my own practice, but since then I have met with three or four cases following pneumonia and influenza, but I still maintain that it is a rare disease in horses. Like sprains of joints it is a term which has crept into veterinary practice almost as the result of necessity. It is an excellent cloak for our ignorance in obscure cases of lameness, but beyond that I cannot go. On the other hand, there are

I know many whose experience teaches them differently, and who consider rheumatism a common disease of the equine. To these fibrous anchylosis will recommend itself, for it is quite certain that no more common change follows articular rheumatism in man than that of fibrous anchylosis, and if therefore rheumatism is common in the horse we cannot venture to doubt the existence of fibrous anchylosis.

Let us examine in a brief manner the various diseases affecting the joints of the five limbs of the horse, and ask ourselves the question are these commonly followed by fibrous anchylosis? Take the knee joint with its common condition broken knee, is it usual to find the joint left stiff after the injury or not? As a matter of fact very few knees are left stiff as the result of the accident in spite of the severity of the blow, and where stiffness does follow it is always in my experience due to bony anchylosis. It is possible of course that some rigidity of the knee may be left as the result of an accident which is not due to bony anchylosis, and it is probable that this is removed by the exercise which follows the healing of the wound, but as a common condition it does not accord with my experience.

We have, however, an undoubted case recorded by Capt. Blenkinsop where the stiff knee yielded to treatment by forcible flexion, and this must have been of the nature of fibrous anchylosis, for it is inconceivable that the treatment could be of any use where bony union existed. The only time I have had forcible flexion of a joint for anchylosis was in the case of a knee joint, and it was truly astonishing the amount of mobility which could be restored. Unfortunately it was only temporary, in a day or two the knee became as stiff as ever, and though I practised flexion on more than one occasion, the case had eventually to be destroyed, and bony anchylosis was present on dissection.

I quote the case in support of Captain Blenkinsop's contention of the amount of motion which can be restored to a joint by forcible flexion and extension, though I recognise that the action of the case was such as not to fall within the class which he considers is benefitted by such active measures.

I think, however, that Captain Blenkinsop has missed a point by not introducing bent knees into his communication, for it appears to me that this is almost an ideal case of fibrous anchylosis, that is if I am correct in the statement that the condition of limbs is due to contraction of the ligamentous structures at the back of the knee joint. If such is its pathology, bent legs should be remedied by forcible extension. As a matter of fact bent legs are capable of being remedied by a much longer process, namely that of light work, and it is a well-known fact among larger employers of horse labour that with young horses this deformity entirely disappears in the course of a year or so, when the animals have passed into the hands of farmers and others where the work is lighter.

Turning now to the fetlock joint we meet the author on his own ground. The bulk of the cases described by Captain Blenkinsop have been those of fibrous anchylosis of the fetlock, and this is a condition which personally I have never met with. That the fetlock is liable to serious trouble, sprains, blows from brushing etc., is undoubted, but I cannot call to mind anything resulting from those of the action of fibrous anchylosis. While accepting in all good faith the existence of the condition described by him, I trust he will not consider me sceptical if I ask for further details of the pathological state of these joints, and what method he employs to determine the existence of anchylosis.

Captain Blenkinsop states that the cases of fibrous anchylosis of the fetlock are treated by flexion, the assumption is therefore that the trouble is at the anterior part of the joint; if on the other hand it is posteriorly exhibited I should have thought that extension would have been the most suitable.

In the pastern joint we meet with a condition which in some cases may lend itself to the treatment by forcible extension and flexion. I have seen reason to believe that some ringbones may arise from sprains of the pastern joint, the ligaments holding the two bones in apposition are certainly frequently found diseased, and it is possible that some ringbone cases may originate in the ligamentous structure. One argument which supports this is the undoubted fact that a ringbone during life is very much larger than the deposits on the bones after boiling would have led us to suspect, and I have verified by repeated dissection that the fibrous structures surrounding the joint are freely implicated in the diseased action. It is no uncommon thing to find that a considerable enlargement of the pastern during life is represented on the bones themselves by a few trifling bony deposits.

It has occurred to me since reading Capt. Blenkinsop's paper that it is possible there may be some cases of ringbone which might be benefitted by forcible manipulation, and I shall certainly employ this in the next suitable case.

We must now consider the value of stretching as a remedial measure, and I may at once say that though I have had to differ with Capt. Blenkinsop on some points, I am entirely with him as regards the value of the treatment employed. Rest as an agent in the treatment of lameness is of undeniable value, but I am convinced that there are cases where long continued rest is positively harmful. This is the rock on which the surgeon has split, and we are likely to follow his example unless we recognise that there are cases which no amount of rest appears to restore to any degree of useful soundness. If you ask me to clearly define what these cases are my reply is that I cannot, they are classified in my mind as obscure, and I am only capable of recognising them by the fact that they absolutely refuse to yield to the rest treatment, and are much better or even cured by work. I shall, however, qualify this statement by saying that though obscure cases of lameness represent the bulk of those which come into my hands, it is only a small percentage of these which fail to derive any benefit from rest.

But there is yet another class of case which may be benefitted by work; although it is opposed to Captain Blenkinsop's views, I have certainly seen in one case most excellent results follow work in a case of long standing articular disease of the fetlock joint, when months of rest had failed to be of any service. In fact I think we may almost lay it down as a general rule that if three or four months complete rest fails to restore a horse to soundness, he is either incurable or will be made better by work.

I have spoken of work as if it were synonymous with Capt. Blenkinsop's method of treatment; as a matter of fact work may be regarded as passive stretching in contradistinction to forcible stretching. We have as a profession unconsciously practised joint stretching for years, for who has not heard of a horse being worked sound. To Captain Blenkinsop we are indebted for placing the treatment on a rational basis, formulating the class of case for which it is suitable, and for showing us that there are cases where active stretching is probably more beneficial than passive.

Mr. HUNTING said he had a feeling of sympathy with Captain Smith who avowedly discovered obscure lameness occasionally. He (Mr. Hunting) was sorry to say that the lameness which he found was generally obscure in its causes. There was difficulty of diagnosis, too, in cases of fibrous anchylosis. He was puzzled to know what the condition which Captain Blenkinsop described really was, and he did not think the essayist was alto-

gether clear in expressing what it was. Some of the cases to which the essayist referred led him (Mr. Hunting) to think that they were simply exudations interfering with the movement of the tendons. These cases were certainly not rightly described as fibrous anchylosis of the joints. His (Mr. Hunting's) experience was that the best marked cases of depression of the joint were indicative of injury. He related a case of injury to a horse's elbow in which he was concerned professionally. The animal was stood in slings for some time, being unable to bend its knee. The horse was put under chloroform and to the astonishment of himself and his assistant the moment the horse was under the influence of the anæsthetic they tried to flex the knee and failed, but then tried to flex the elbow and succeeded. The explanation was that that the elbow being fixed had fixed the knee through the long tendons passing down on the outside in front of the knees. Supposing they succeeded in diagnosing tho fibrous fixing of the joint he asked whether it was necessary or the best practice to put the horse under chloroform and suddenly and at once to break down these adhesions. His belief was that this could be done just as effectually by slowly and steadily stretching the parts. He gave particular instances of this which had come under his personal observation.

Professor ALMOND had no doubt whatever of the existence of fibrous anchylosis. Stiff joint as the result of fibrous adhesions in the neighbourhood of the joint had frequently come under his notice. He could endorse from personal experience the advantage of movement in the event of such conditions existing, and he had no doubt this was the experience of most members present. He was a believer in the advantage which followed moderate exercise after inflammation of the synovial membranes of the ligaments at the back of the knee and other parts of the body, and when the more active inflammatory action had subsided. Turning to the question of bent knees he observed that nothing had been said about bent knees in young horses. His experience taught him that one of the most common causes of bent knees in young horses was their being tied up in stalls where the front of the stall was higher than the back of the stall. His belief was that there was no more prolific cause of bent knees than the constrained endeavour of the horse to maintain its position standing high in front; and he had no doubt that it had been observed by some gentlemen present that if such a horse was let loose it would invariably turn round and stand on the lowest part of the ground. His conviction, based on his experience, was that a horse should never stand for any length of time higher in front than behind. He was rather surprised to hear the observations which had been made with regard to rheumatism. It had been truly said by several speakars that they occasionaly met with occult cases of lameness the cause of which it was not always easy to determine, but when they came across cases of intermittent lameness associated with adhesions and swellings more or less acute in character and occurring frequently in the same individual, he knew of no other interpretation of those conditions than to describe them generally as rheumatism. Personally he had often met with cases of that kind where animals had been more or less stiff all round the four limbs and which, although they had been subjected to other treatment for considerable periods, sometimes yielded in a few days to treatment by antacids and arsenic. In those cases he thought they were warranted in assuming, in the absence of other causes and with their experience of the conditions in the human subject, that such lameness was due to rheumatism. Then again another symptom common in the human subject in cases of rheumatism—that of the snapping and cracking of joints—was a condition which they frequently found in the case of horses. Coupling the presence of this symptom with the comparatively short periods and intermittent nature of the cases, he thought there was no reasonable doubt that all this was symptomatic of rheumatism. Another symptom which he had repeatedly found was the acute nature of the temperature of the part affected. Thus, one of the commonest conditions of rheumatic lameness, was the coldness of the limb alternating with heat. Frequently the limb was unnaturally cold—that was colder than the opposite limb. Another case which had frequently come under his notice, although not perhaps under his treatment, was that where they had enlargement of the back of the tendons which commonly yielded to strong applications like that of turpentine. He regarded these cases as due to rheumatic causes. Finally he expressed himself as having no doubt of the existence of rheumatism not only in the horse but in the dog as well.

Professor MACQUEEN speaking of bent knees said the difficulty he found in practice had not been to make a bent knee subtle but after straightening a bent knee to keep it straight. He thought they would find in a good many cases that this was really the chief difficulty they had to overcome, and here the treatment recommended by Captain Blenkinsop would be unavailing or not required at all. The horse would straighten his knee if some support was given to the knee or if the knee were simply extended; but the moment the support was removed, the horse leaned forward once more. No amount of flexion or extension was likely to remedy that condition. With regard to the other form of bent knee which was not nearly so common as the subtle form, he still maintained what he said previously that it was nearly always due to disease of the bones. Captain Smith rather surprised him by a remark he made with regard to ringbone; and although it was not his place to discuss Captain Smith's statement, yet he would perhaps allow him to refer to this point. Captain Smith referred to the facility with which ringbone—the exudation, the swelling—could be removed, and, apparently he wished to convey that in these cases or the case that he had present to his mind, the swelling was made up largely of fibrous tissue. Now, he must differ from Captain Smith in that respect. If he referred to the exostosis on the pastern, in the majority of cases where there was any movement at all, they were decidedly bony. He was not surprised at the remark coming from Mr. Hunting as to the difficulty of diagnosing cases of lameness. Everyone would agree with Mr. Hunting that there were cases which no one could diagnose. Of course they had not always that candour which belonged to members of the press. (Laughter).

Captain BLENKINSOP, in replying to the discussion, said: The discussion which has taken place has not been confined to the facts which I set forth, but has wandered to points to which I did not allude, and which are altogether outside the scope of my paper. I do not wish to touch upon these points. First, as to the use of the term "anchylosis," let me say that before to-night I imagined that the term "fibrous anchylosis" was well understood by all men connected with surgery. Of course I employed the term as one in general use. If it is not understood I am sorry I have used it. It is a commonly accepted term descriptive of the conditions which existed in the cases I have treated in the way which I have explained. Doubts have been expressed as to the existence of rheumatism in horses. Of course I do not express an opinion as to whether rheumatism exists or does not exist. All I say is that I have met with cases which I considered were due to rheumatism. I think no one here will fail to see I meant cases of lameness following influenza and those cases which are generally accepted and known, and even talked about as rheumatic affections. As to the treatment of bent knees in horses which I advised, I am aware that standing over, knuckling over at the knees and joints of the forelegs

would not benefit by flexion or extension. If you have stiffness, want of mobility of the joints then, probably, you might do some good, but in the majority of cases, as Professor Macqueen pointed out, where horses are over at the knees, I have not seen this want of mobility. As to the treatment of ringbone by this method, I have very carefully pointed out in my paper that where you have disease in the joint and of the articular cartilage you cannot expect to get recovery from flexion of the joint. I have attempted to flex spavined joints and the result has been a great deal worse than one would have imagined. The horses went very lame indeed. Mr. Hunting suggests gradual extension and flexion. Well, I have found that people having lame horses are not inclined to keep their horses under treatment two or three months. They want to get them to work. A horse that has a stiff joint in the foreleg is not, in my opinion, fit to be worked except on a very level road and is dangerous owing to the immobility of his joint. Hence I maintain it is better, if you can do it, to flex the joint at once and be done with it, than to keep the horse under treatment. When a horse is not under chloroform the gradual flexion of a joint causes the animal a certain amount of pain. It is much better to subject the animal to chloroform and flex the joint at once and be done with it, if you have made up your mind to flex the joint. As to what I mean by fibrous anchylosis of the joint, several gentlemen said they had never seen it. Well, all I can say is, after the observations of veterinary surgeons in all parts of the world which I have cited, if those gentlemen have never seen it, I can only imagine that they never looked for it. What I referred to was where animals have conditions of sprains or exudation which have become organised round a joint. Those cases, I find, do benefit by this flexion; and it merely remains for gentlemen to try the treatment for themselves and judge of its results. Personally I have adopted the treatment and been perfectly satisfied with the results I arrived at. (Applause.)

Mr. BARRETT moved a vote of thanks to Captain Blenkinsop for the able paper with which he had favoured the Society.

Professor MACQUEEN seconded the motion.

The CHAIRMAN: I am quite sure we all feel grateful to the essayist for having given us so much information and for having elicited—which is an important factor—so much information, confession, and variety of opinion from members of the Society.

The motion was carried by acclamation.

Captain BLENKINSOP: I thank you for the manner in which you have received my paper and for the vote of thanks.

THE ADMINISTRATION OF ANÆSTHETICS.

The CHAIRMAN announced that they had reached the usual time for the termination of their proceedings, but Professor Hobday was desirous of explaining a new instrument he had invented for the better administration of anæsthetics to the lower animals and Dr. Buxton, the anæsthetist at University College Hospital, was present and was willing to give them the benefit of his experience. Was it the desire of the Fellows that the meeting should be prolonged in order to hear those gentlemen?

Mr. ROWE proposed that the meeting should be prolonged for half-an-hour for this purpose.

Professor MACQUEEN: I should like to move as an amendment that this matter be deferred until our next meeting when, I trust, Prof. Hobday and his friend (Dr. Buxton) will be able to attend. I think the importance of the subject of anæsthesia and the great deal of time and attention which Prof. Hobday has given to the invention of this apparatus deserve something more than an odd half-hour.

Prof. MCFADYEAN seconded the amendment.

The CHAIRMAN explained that Prof. Hobday had undertaken to read a paper at the next meeting.

The original motion was then adopted.

Prof. HOBDAY said the idea I have to introduce to you is that of an apparatus for producing anæsthesia in dogs and small animals. It consists of a small bottle with a wide neck to which is fitted a cork bored for the passage of two tubes. One tube, at the lower extremity of which is fitted a valve to prevent egress, allows admission of air which passes over the chloroform in the the bottle and mingles with its vapour; the other is for the exit of a mixture of air and vapour. To the latter tube is attached one extremity of a pair of rubber bellows, the action of which is to suck vapour from the bottle and force it on towards a mask which fits the animal's head. The amount of anæsthetic admitted into the mask is regulated by a tap placed in the lower portion. The mask, made of leather, is shaped so that it will fit the face and can be made in any size; the one I have here I find the most convenient for the average dog in order to save the expense of two separate ones. It is fitted with a lining of felt which can be removed, cleansed, and disinfected after each time of using, and has straps attached to fix it to the face.

The method of administration is to secure the animal on the abdomen on a table, apply the mask firmly to the face and let an assistant work the bellows. In a large dog it is best to strap the mask on (taking care not to draw the collar strap so tight as to interfere with respiration) as with a powerful animal it is difficult to keep it in position during the struggling which may occur. The supply of air from the end of the mask (which is open) must be regulated by the hand; I have tried valves in this situation and several other patterns of mask but consider that this is much the safer and better method, as on the first signs of danger a full supply of air can at once be allowed.

With this apparatus I have now anæsthetised 92 dogs with only one death, and that ought not to be taken into consideration as I had already kept the animal in a state of complete and safe anæsthesia for half-an-hour when I was compelled to leave it in charge of a class C student, the result being that this gentleman thoughtlessly excluded the admission from the end of the mask for nearly ten minutes and caused asphyxia.

The animals were all Free Clinique patients, and were not (with three exceptions) in any way prepared; they were of all ages, breeds and sizes, and in all kinds of condition, two, at least, being pregnant.

Some were anæsthetised three or four times, and the length of time varied from a few minutes to more than three hours. The operations also, a list of which is given in last quarter's number of the *Journal of Comparative Pathology and Therapeutics*, included such severe tests as amputation of limbs, reduction of hernia, excision of the eyeball, etc., and were intentionally performed at various intervals after anæsthesia was produced.

I have tried it in the calf and sheep, and find that for these animals the shape of the inhaler must be modified as this one presses on the wings of the nostrils and interferes with respiration; in the pig it answer well; for the cat it has been several times successfully used for the administration of ether.

For its trial in human practice I am indebted to Dr. Buxton, anæsthetist at University Hospital, who has kindly consented to be present this evening. One great advantage is its safety, as, when one drachm of chloroform is in the bottle only about one-twelvth of a minim of chloroform vapour (well mixed with air) is forced into the inhaler and this can be still further reduced by means of the tap on the mask or by only partially pressing the bulb.

With a large dog it is necessary to commence with

four or six drachms in the bottle, thus forcing out about one-fifth or one-fourth of a minim through at each full pressure. This small amount minimises chances of overdose, and in some cases I have noticed a complete absence of the stage of excitement. The fact of the vapour only being admitted does away with the rubefacient and irritant effects which sometimes follow the direct application of chloroform to the nostrils. The saving of chloroform is too obvious to need comment. Before concluding I feel that I must express my thanks to the instrument manufacturers, Messrs. Arnold & Sons, for much courtesy shewn in lending various designs of apparatus for trial and for trouble taken to alter my models exactly as desired many times during the past twelve months.

Dr. DUDLEY BUXTON said that he had not only had a wide experience in the administration of anæsthetics to the higher animal—man—but also to the lower animals. He had been painfully struck by the imperfect methods frequently used in placing the lower animals in the state of anæsthesia. He had often found that owing to the rough-and-ready method pursued, experiments had failed because dogs had died under the influence of the anæsthetic. The practice existed at one time of putting a dog in a box and then pouring chloroform on tow or on some such material, and administering it to an animal. This was a plan adopted in very elaborate operations. The result was that in a certain number of cases the animals went under well, while in a certain percentage of cases the animals died and died without hope of salvation. It would be remembered that in some of the Hyderabad experiments the animals were put under in this way. Improvements were from time to time adopted, but with qualified success only, and when Professor Hobday devised his apparatus it struck him (Dr. Dudley Buxton) that in it was a possibility of obtaining quite a light anæsthesia by a very simple piece of mechanism—an apparatus which could be entrusted to the most careless student with whom they had to deal. His experience of the apparatus, at present necessarily limited, had as far as it went justified his anticipations, at least, as far as the lower animals were concerned. He had, at the request of Professor Hobday, tested the value of the apparatus in relation to the human subject. He had used it at University College Hospital, and although he could not give them an authoritative judgment as to the value of the apparatus for adult human beings, he was sure that it would prove of value for children, and for persons whom it was desired to keep in what might be called, the second stage of anæsthesia. (Snow). In the second stage, such as was generally aimed at in cases of parturition, he belived that Professor Hobday's instrument would prove most valuable. He had found that the apparatus could produce a safe and quite peaceful anæsthesia. He found it also enabled one to allow the patient to enter the first, or still lighter stage, or to push beyond the second, and enter upon the third stage of anæsthesia with the utmost facility. There were many advantages in the apparatus. One in the fact that air in passing over the chloroform was not in any way affected by the actual depth of the column of the chloroform in the inhaler, since the chloroform taken up was withdrawn by the air in playing over the surface of the chloroform and not as in Junker's apparatus by traversing or bubbling through a column of the chloroform. In Hobday's apparatus there was less likelihood of oxidation of the chloroform taking place. He had found the apparatus very successful in the case of dogs, enabling them to be kept safely in a state of anæsthesia for a very prolonged period extending in some cases to several hours. The apparatus indeed was so safe that he had been obliged to dispense with it when it was necessary to destroy the animal, substituting another method to attain this end. Dr. Dudley Buxton said his experience with chloroform was both with the lower animals and man. As their Society was concerned mainly with the former he would confine his remarks chiefly to what might be called veterinary chloroformisation. What had struck him many years ago when working in the physiological laboratory was the rough-and-ready manner in which animals were usually chloroformed. The methods adopted in many cases led to fatalities through over-dosage, and it not infrequently happened that experiments were vitiated by a too profound narcosis necessitating the performance of artificial respiration. No doubt these occurrences were due to carelessness, but had the methods been less rough-and-ready there would have been less room for the intrusion of this carelessness. The method of placing an animal in a box and soaking a roll of blotting paper or a whisp of tow with chloroform, or giving chloroform from a cloth thrown before the animal's muzzle, were methods which easily led to over-dosage. The improvement introduced by Dr. Junker which had been so efficiently adapted for the wants of the lower animals by Mr. Krohne was a very distinct advance upon the older methods. But it very often happened that very low ranges of narcosis or anæsthetic sleep were required, and in such cases Mr. Hobday's apparatus shows itself to be of great value. It was upon recognising this that he (Mr. Dudley Buxton) had had great pleasure in attending the meeting that evening and in expressing his views upon the apparatus which had just been placed before them. It was of much importance for all who took an interest in the subject to appreciate the fact that chloroforming the lower animals and chloroforming man could not be carried on on precisely the same lines. A mistaken idea had formerly existed that the plans and doses applicable in the case of man could with equal success be employed for the lower animals. Now although the same laws applied to them it was necessary to study both men and the lower animals separately, and not to simply generalise from the one to the other without reference to minor differences which certainly appeared to obtain. It was for example of the greatest importance in the lower animals to have such control of the strength of vapour presented to the delicate mucous membrane of the nose, pharynx and larynx as to obviate holding of the breath, spasm of the larynx, and other conditions is especially liable to occur with the lower animals. Prof. Hobday's apparatus was of value in that connection since it presented a chloroform vapour of great tenuity, which was inhaled without discomfort or fright. Valuable as Junker's apparatus was it had the disadvantage that if the bellows were worked by a person ignorant of the potency of chloroform or reckless of results it was easy to crowd on too much vapour. It also relied upon the principle that the air pumped in passed through a layer of chloroform which was at one time deeper than another, and hence the strength of the vapour delivered by the efferent tube varied. In Hobday's inhaler the air played over the surface of the chloroform and took up the same quantity each time, the actual strength of the vapour being dependent upon the temperature of the air pumped over. He (Dr. Dudley Buxton) had now witnessed the use of the Hobday inhaler in a number of cases and had himself employed it, maintaining a peaceful and effectual anæsthesia for a very prolonged period. At Prof. Hobday's request the apparatus had been employed in producing anæsthesia in human beings. The test cases were, however, two few at present for an authoritative statement to be made. But so far Dr. Dudley Buxton had found it of value for young children, who went off quietly and without fright. It was also of use when low ranges of anæsthesia were required, and thus in prolonged anæsthesia, *e.g.*, in abdominal sections, he had used it to keep the patient under, having put the patient rapidly to sleep with the Hyderabad cone or Jun-

ker's inhaler. For similar reasons Hobday's apparatus was suitable for the low range of anæsthesia required in parturition. Without occupying more time upon a subject which lent itself to very much more elaboration Dr. Dudley Buxton would content himself with congratulating Prof. Hobday upon the success at present obtained by his inhaler.

Mr. BARRETT asked in what respect the apparatus differed from one he saw in use at Guy's Hospital fifteen years ago. He had no desire, whatever, to detract from the methods of Professor Hobday's instrument, but it seemed to him that this mode of administering chloroform had been in use for many years. The instrument he saw in vogue at Guy's was worked by an india rubber ball, similarly to that of Professor Hobday's. The only difference appeared to him to be that in the case of the Guy's instrument the anæsthetic passed into a large bladder like apparatus into which an opening was inserted for the admission of air. The form of hood placed over the nostril might be a little different, but that, he took it, was not an important part of Professor Hobday's invention.

Professor MCFADYEAN: I think this is rather unfair, because from what Mr. Barrett has said I am wholly unable to gather what was the form of the apparatus that gentleman saw at Guy's Hospital fifteen years ago, and I am quite sure Professor Hobday did not see that instrument fifteen years ago. I think we ought to call upon Mr. Barrett to give us such a description of the apparatus in vogue at Guy's fifteen years ago as will enable us to realise the difference between the two instruments.

Mr. BARRETT said the apparatus he saw at Guy's and the present one struck him as being similar in all essential points. He understood that Professor Hobday introduced his apparatus as an original invention.

Professor MACQUEEN said that Professor Hobday did not claim originality for his instrument. He claimed, however, to have introduced a new apparatus. The apparatus to which Mr. Barrett referred was over fifteen years old.

Mr. HUNTING said he took it that the special advantage claimed for this apparatus was that by it chloroform could be administered in the least possible quantity and so lighly that they could not very well kill a dog with it, and, therefore, it was perfectly safe to use. He (Mr. Hunting) thought that with all these apparatus there might be some little advantage in the way in which chloroform vapour was admitted into the lungs but there was always the danger that these instruments might lead people to think they could be worked without brains, as Dr. Clarke had pointed out. An illustration given by Mr. Hobday showed that with this, as with other instruments, mishaps could occur if the element of brains was lacking in their use. It was just as well not to rely upon an apparatus as enabling them to dispense with caution. His opinion was that they had often as much trouble with an apparatus—and occasionally much more—than they would have if they administered anæsthetics by the simple means of a sponge and towel. In India with simple methods there was one tenth of the mortality which occurred in this country where we had all sorts of curious instruments.

Professor MACQUEEN: I move that the further consideration of this subject be deferred. There are some questions which I wish to ask, several of which refer to the remarks of Dr. Buxton who, I hope, will be able to be present at our next gathering.

Professor MCFADYEAN seconded the motion.

On the motion of Mr. Rowe, seconded by Mr. Samson, a cordial vote of thanks was accorded to Dr. Buxton for his presence and speech.

Dr. BUXTON, in acknowledging this vote, said he would attend the next meeting of the Society if he possibly could, and the more they "heckled" him the better he should like it. (Laughter.)

The meeting then terminated.

EXTRACTS AND NOTES.

TRADE NUISANCES.

By Prof. A. BOSTOCK HILL, M.D., D.P.H.

INDUSTRIAL NUISANCES FROM ANIMAL MATTERS.

(*Continued from p.* 442.)

The boiling of flesh, tripe, &c.—The boiling of flesh is usually carried on at knackeries in pans generally situated in the slaughterhouse, sometimes these are heated by open fires and sometimes by steam thrown in, the fat is skimmed off and sent to soap boilers, while the boiled flesh is placed on the floor of the slaughter house and afterwards hung up to dry. The liquor is ladled out hot and thrown on to an open channel and down into a drain. *Tripe* is the first stomach of the ox, and this is first cleaned and scalded and then scraped, generally by hand, it is afterwards boiled in open pans, the fat skimmed off and set aside. When the tripe is sufficiently cooked it is hung up to cool, and the boiling liquor is discharged into the drains.

The sources of nuisance in the establishments being: (1) the vapours arising from the boiling pans; these are specially bad at knackeries, particularly in close muggy weather; (2) the vapours arising from the boiled materials whilst cooling; (3) the vapours arising from the liquor running into the drain; (4) general untidiness and want of cleanliness of the place itself.

These nuisances can be dealt with as follows: in small tripe and trotter boiling places the boiling-pans should have a hopper fixed over it, and connected with a high chimney having a good draught; it will not do to allow the steam simply to escape through a hole in the wall at a low altitude. In larger places the lid should fit closely, and a pipe should take the vapours down beneath the fireplace, where they will pass through the fire and be consumed. The ashpit of course must have a well-fitting door. For large establishments, such as knackeries, the plan adopted at Adams's, in Birmingham, is about the best. It is as follows: six boilers are arranged side by side, each having a wooden lid fastened tightly on. At the top of each pan is a pipe which connects with a ten-inch main pipe, and this is connected with a condenser outside the building. This condenser is about fourteen feet long, is made of sheet iron, and filled with coke, and is kept cool by being exposed to the atmosphere. It is inclined at an angle, and a pipe at its lower border leads away the condensed vapour. The upper end is connected with the chimney by two pipes. I should add that the boilers are themselves placed in a sort of closet, and when the pans require an examination a sliding door enables this to be made, while any issuing steam rises to the top and finds access through a waste pipe into the chimney. The second source of nuisance may be remedied by placing the flesh to cool in pans of cold water; while the third is obviated by allowing the liquor to cool before it enters the drain. As regards the fourth, cleanliness must be insisted on; while the processes should only be allowed in those premises properly paved and impervious, and structurally suitable, and having non-absorbent vessels for the reception of garbage and offal.

Fat melting and Candle making.—The materials used are kitchen fat, pig's fat, and butcher's fat, consisting of beef and mutton fat mixed. The following are the methods adopted: (1) if the fat is melted in an open

pan, it is first cut up into small pieces; (2) these are then placed in the pan and heated, the pan being kept stirred by a workman with an iron stirrer to prevent burning.

The other plan consists in heating the fat by steam alone, or by steam, sulphuric acid having previously been added; when this is the case the boiler must be lined with lead, and as the ingress of the steam itself causes agitation no stirring is required. At other works the fat is melted in steam jacketed pans; (3) the rendering completed, the tallow is ladled out into open pans, sometimes after being strained; (4) the next process is the further pressing of the refuse left in the pans, generally by a screw or hydraulic press to further extract fat, by which what is known as "*greaves*" is made.

The following are the sources from which nuisances may arise: (1) storing of old and rancid fat, this however never extends far; (2) the vapours from the melting pan, especially from those open ones heated by fire, when the stirring has been neglected and also when the fat is old and rancid; (3) during the ladling out, especially towards the end, as these portions are likely to become over-heated, nuisance may arise; (4) greaves pressing, as it is done while the tallow is hot enough to give out vapours; (5) filthy and dirty condition of premises and vessels, owing to the presence of stale and rancid grease.

It will be at once seen that all these nuisances are very easily prevented: (1) by using only sweet fat; (2) by steam melting. This should always be insisted on in towns, though fat-melters object to adopt the plan because they lose the profit to be obtained from the "greaves." If the fat is melted in open pans then these should have iron jointed lids and the vapours should be conducted as previously mentioned beneath the fire. If steam melting be adopted then the vapours can be collected by shafts and conducted into tall chimneys or through a fire, or as is sometimes done, a partial condensation may be first effected; this nuisance occurring from ladling out the fat can only be dealt with very partially by the provision of a hood over the pan; (4) the nuisance from "greaves pressing" can be abated by closely boxing up the press and leading the vapours to a shaft; while (5) cleanliness, scraping, washing, and lime-whiting will of course reduce the nuisance produced by untidiness, etc., to a minimum, and at the same time in the end conduce to financial success.

Soap boiling or *soap making* used to be a very offensive trade previous to the introduction of British alkali, now however it can be conducted practically without nuisance, and when effluvia do arise it is chiefly in connection with the melting of fats, and this of course can be dealt with on the principles previously stated.

Blood drying, blood boiling, the manufacture of blood albumen.—These trades all tend to produce nuisance: (1) from decomposed blood being used; (2) the peculiar odour due even to fresh blood, but more marked when cleanliness is not observed; (3) effluvia from blood boiling, especially in open pans by fire heat, and when the blood is decomposed, and lastly from blood manure making, which is frequently carried on in the same premises. In populous places steam heat only should be applied, while perfect cleanliness and the ventilation of the works by mechanical means at the top into the shafts will prevent the diffusion of the stinking effluvia into neighbouring dwellings.

Gut scraping, gut spinning, and sausage skin making.—This trade consists in the preparing of the intestine of the pig and sheep, by scraping, cleansing and twisting or spinning it, to form what is known as catgut.

The first operation consists in soaking the guts in water, or passing through them a stream of water from a tap, sometimes after this the "guts" are soaked for some days in brine. The process of scraping is performed either with a wooden scraper, or the back of a knife, so that all the soft parts are detached. The guts are then further soaked, and if they are intended for use for sausage skins they are simply packed in salt in barrels and sent away. If, however, they are to be made into catgut, they are sewn together and twisted on a spinning wheel into cords of the required thickness. If intended for use as violin strings, they can only be made from the finest and freshest guts. It is quite obvious that the sources of nuisances arise: (1) from stale and offensive guts; (2) from dirty and unsuitable workshops, and (3) from improper storage of waste material.

Unless one has had experience of the disgusting nature of the stench arising from some of these places, it is quite impossible to realize it. Dr. Ballard says, "Speaking generally, gut scraping and gut spinning establishments are the most intolerable of nuisances, wherever they may chance to be located. Within the workshops the stench is inconceivably horrible; few persons unaccustomed to it could bear to remain for a single minute in some scraping rooms."

Bone boiling.—This is a trade which is at times productive of serious nuisance: (1) because stale and putrid bones are conveyed and stored, and (2) during the boiling the steam is very offensive, while the bones after boiling, if heaped together as they generally are, give rise to a nasty ammoniacal odour, which is offensive and persistent. The way to obviate these sources of nuisance is first of all the conveyance of the bones in closed receptacles, tarred bags are highly spoken of, and the boiling of them by steam jacketed pans. If boiled by fire the steam must be conveyed by suitable pipes from the boilers into a shaft and either burnt or diffused in the air at a good altitude. The bones after boiling while they are stored should be covered over by tarpaulins so that exposure to the weather is lessened. Or they may be dried in a suitable chamber after withdrawal from the boilers, by means of coke fires, the steam being allowed to escape or being condensed.

The manufacture of artificial manure.—This perhaps is one of the largest industries which give rise to nuisance, and the processes and materials employed are very numerous. The chief varieties are the phosphatic nitrogenous and saline. The phosphatic are derived from coprolites, phosphorite, and other minerals, bones, guanos, char dust from sugar refineries, sugar scum, &c. The nitrogenous materials are blood, animal flesh, guano, shoddy, scutch, and sometimes night soil. The saline are common salt, sulphate of ammonia, nitrate of sodium, &c. Most of these manures are made by the agency of sulphuric acid. The acid used is generally the crude chamber acid made from pyrites, and containing therefore arsenic in variable quantity, the amount sometimes being large, and this must be borne in mind in considering the nature of the vapours given off.

In the making of superphosphate, the coprolites are first powdered, or bones if they are used, crushed and then mixed either separately or together with sulphuric acid. This process is always done under a shed, and this is as a rule lighted and ventilated from the top. Mixing is done in two ways, by hand or mechanically. The mixer generally consists of a covered vessel raised from the ground or on an upper floor, sometimes it is quite closed but sometimes only partially so; the acid is generally run in from a tank on a higher level, the mixing usually takes about four or five minutes. A pasty mass is formed which runs out of the mixer into the "*hot den.*" This is generally a brick chamber with a paved floor. In this den the manure remains to set and the times varies from twelve hours to three or four days. It is then dug out and removed to another part of the building. As a result of chemical action great heat is produced, exceeding 200°F. The vapours given off contain a large quan-

tity of moisture and also fumes of a compound of fluorine, silicon tetra fluoride, and these are decomposed by the moisture into hydrofluosilicic acid. Other common manure making processes are as follows :—

Dissolved Guano is made by acting on Peruvian guano with sulphuric acid ; the process is practically the same as for superphosphate, but in addition to the gases given off in that manufacture, organic vapours of an unpleasant kind are evolved.

Leather, shoddy, fish, blood, and scutch are also acted on by sulphuric acid for the purpose of manure making. While in some places human excreta are converted into a poudrette, first of all by condensation after the addition of a little sulphuric acid to fix the ammonia, and then sometimes by the addition of superphosphate.

HORSES FOR CAVALRY SERVICE.

To the Editor of The Times.

SIR,—In your issue of the 18th inst. I am pleased to see that Major Rasch calls attention to the inutility of the registration of Army horses.

My knowledge of horses may not be equal to that of the Financial Secretary to Her Majesty's War Office. When this official states that 75 per cent. of registered horses are suitable for light cavalry, I may, perhaps, remark that for our cavalry this class of horse is just the sort which we do not wish to produce.

On the registration for horses suitable for military purposes, including those suitable for "Transport riders," £56,000 has been spent in eight years. Quite recently it was found they were not provided with suitable saddlery or harness.

Now to pay 10s. per annum for the production of an unbroken horse is wasteful and ridiculous expense to the nation. "In horseflesh an expensive reality is better than a costly sham."

Our object should be to encourage the breeding and maintenance in this country of weight-carrying hunters.

The War Office might assist if they would, by adding £25 each to the regulation price of 200 troop horses annually. The more suitable a horse is for the job, the longer he will last. The results of my suggestions could not be more futile than the expenditure of £7,000 per annum by Government for a 10s. registration fee for the stamp of a hansom cab or heavy draught horse. There would still remain £2,000 to be distributed in prizes for young equine stock by the Queen's premium or certified sound sires. A certificate of soundness for horses travelling the country is, I hope, to be brought before the Board of Agriculture by the Hunters' Improvement Society, of which I am vice-president.—Your obedient servant,

W. H. ALLSOPP, Lt.-Col.

Junior Carlton Club. Feb. 19.

Diseases of Animals in Great Britain,

The returns for Great Britain under the Diseases of Animals Act show that for the first eight weeks of the year there were 989 outbreaks of swine fever, as against 711 and 544 in the corresponding periods of 1895 and 1894 respectively. The number of swine slaughtered as diseased or exposed to infection in the eight weeks was 13,150, the corresponding numbers in 1895 and 1894 being 4450 and 7407 respectively. There were 100 outbreaks of rabies in the eight weeks, as against 76 and 119 in the respective periods of 1895 and 1894. A decrease to date is recorded for glanders, the total outbreaks for the eight weeks being 124, whereas there were 151 and 186 in the equivalent periods of 1895 and 1894. Of rabies in dogs 119 cases were reported, as compared with 125 and 26 in the first eight weeks of 1895 and 1894 respectively. No cases of either foot-and-mouth disease or pleuro-pneumonia have been reported this year. —*Times.*

PARLIAMENTARY:

TUBERCULOSIS.

On the motion of Mr. KNOWLES (Salford, W.), it was decided to reappoint the Royal Commission on Tuberculosis and to extend the scope of its inquiry, so that it might further inquire and report on administrative procedures available for reducing the amount of tuberculous material in the food supplied by animals to man.

IRISH FARMERS AND FOREIGN-FED MEAT.

In reply to Mr. Engledew (Kildare, N.),

Mr. RITCHIE (Croydon) said the Board of Trade had received only two complaints (in 1894) from Irish bodies with regard to the sale of foreign-fed meat as home-fed meat. The amount of foreign-fed meat imported into Ireland directly was very small. As at present advised he could not undertake, by legislation or otherwise, to compel the sellers of foreign meat to distinguish it as such.

THE PURCHASE OF HORSES FOR THE ARMY.

In reply to Major Rasch (Essex, S.E.),

Mr. POWELL-WILLIAMS (Birmingham, S.) said,—A few three-year-olds are purchased, but the establishment charges of remount depôts for troopers where three-year-olds could be kept till sufficiently matured for the ranks would be considerable. The cost of keep for 12 months and the additional risk involved which deters private persons from giving as much for three-year-olds as for four-year-olds naturally also affects the Government.

ORDERS FOR THE MUZZLING OF DOGS.

In reply to Colonel Mellor (Lancashire, Radcliffe),

Mr. LONG (Liverpool, West Derby) said—I agree with my hon. and gallant friend that it is frequently very desirable that muzzling orders for dogs should be applied uniformly over a sufficiently wide area, irrespective of the fact that the area is comprised within the jurisdiction of several local authorities, and on many occasions we have taken active measures to secure this result. But, on the other hand, there may well be such a difference in the circumstances existing with regard to the areas of neighbouring local authorities as to justify those authorities in arriving at different decisions, especially as to the time when the regulations might be withdrawn ; and where this was the case I could not with advantage interfere. I fully recognise, however, the inconvenience to which my attention is directed, although I am afraid that to some extent it must occur whatever be the boundary adopted.—*Times.*

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED :—Messrs. R. H. Clarke, W. R. Emery, J. A. W. Dollar, J. W. Hewson, J. A. Robinson, H. D. Chorlton.

Histology of the Horse's Foot, *The Daily News* (Port of Spain), *The Civil and Military Gazette* (Lahore).

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

Communications for the Editor to be addressed 20 Fulham Road, S.W.